CLAIMS

1. A multiple path information transfer method in a cellular radio network, including the steps of

receiving, at several receivers, radio signals representing digital information from at least one signal source;

extracting, from each received radio signal, a corresponding digitized baseband signal that at least partially contains soft information;

compressing at least parts of the soft information of said extracted baseband signals to form compressed baseband signals;

forwarding said compressed baseband signals to a combining unit over a transport network;

de-compressing said forwarded signals to at least approximately restore said baseband signals; and

using said de-compressed signals to at least approximately restore said digital information.

2. The method of claim 1, including the step of performing noise suppression on at least parts of said extracted baseband signals before compression.

3. The method of claim 2, wherein said noise suppression is performed by a posteriori probability filtering.

4. The method of claim 3, wherein said noise suppression is performed by maximum a posteriori filtering.

5. The method of claim 3, wherein said noise suppression is performed by log maximum a posteriori filtering.

6. The method of any of claims 2-5, wherein said noise suppression is performed during soft output demodulation.

7. The method of any of claims 2-5, wherein said noise suppression is performed on the output signal from a soft output demodulator.

8. The method of claim 1, wherein said compressing step includes vector quantization of at least parts of the soft information.

9. The method of claim 1, wherein the compression in said compressing step is lossy.

10. The method of claim 1, including the step of selecting compression mode for said soft information at least partially based on at least one feedback signal from said combining unit.

11. The method of claim 1, including the step of selecting compression mode for said soft information at least partially based on channel estimates.

12. A multiple path information transfer system in a cellular radio network, said system including

several receivers (BS-1, ..., BS-N) for receiving radio signals representing digital information from at least one signal source;

means for extracting, from each received radio signal, a corresponding digitized baseband signal that at least partially contains soft information;

means (10; 10A, 10B) for compressing at least parts of the soft information of said extracted baseband signals to produce compressed baseband signals;

means (12, 14) for forwarding said compressed baseband signals to a combining unit over a transport network;

means (16; 16A, 16B) for de-compressing said forwarded signals to at least approximately restore said baseband signals; and

means (18-24) using said de-compressed signals to at least approximately restore said digital information.

13. The system of claim 12, including a noise suppressor (28, 30) performing noise suppression on at least parts of said extracted baseband signals before compression.

14. The system of claim 13, wherein said noise suppression is performed by a posteriori probability filters (28; 30).

15. The system of claim 14, wherein said noise suppression is performed by maximum a posteriori filters (28; 30).

16. The system of claim 14, wherein said noise suppression is performed by log maximum a posteriori filters (28; 30).

17. The system of any of claims 13-16, wherein said noise suppression is performed by soft output demodulators (28).

18. The system of any of claims 13-16, wherein said noise suppression is performed by filters (30) filtering output signals from soft output demodulators.

19. The system of claim 12, including means for vector quantization of at least parts of the soft information.

20. The system of claim 12, wherein said means for compressing is adapted to perform lossy compression.

21. The system of claim 12, including means for selecting compression mode for said soft information at least partially based on at least one feedback signal from said combining unit.

22. The system of claim 12, including means for selecting compression mode for said soft information at least partially based on channel estimates.

23. A base station in a digital radio network, said base station including

a receiver for receiving a radio signal representing digital information from at least one signal source;

means for extracting a digitized baseband signal, which at least partially contains soft information, from said received radio signal; and

means (10; 10A, 10B) for compressing at least parts of the soft information of said extracted baseband signal into a de-compressible form to form a compressed baseband signal.

24. The base station of claim 23, including a noise suppressor (28, 30) performing noise suppression on at least parts of said extracted baseband signal before compression.

25. The base station of claim 24, wherein said noise suppression is performed by an a posteriori probability filter (28; 30).

26. The base station of claim 25, wherein said noise suppression is performed by a maximum a posteriori filter (28; 30).

27. The base station of claim 25, wherein said noise suppression is performed by a log maximum a posteriori filter (28; 30).

28. The base station of any of claims 24-27, wherein said noise suppression is performed by a soft output demodulator (28).

29. The system of any of claims 24-27, wherein said noise suppression is performed by a filter (30) filtering output signals from a soft output demodulator (28).

30. The base station of claim 23, including means (10; 10A, 10B) for vector quantization of at least parts of the soft information.

31. The base station of claim 23, wherein said means for compressing is adapted to perform lossy compression.

32. The base station of claim 23, including means for selecting compression mode for said soft information at least partially based on at least one feedback signal from an external unit.

33. The base station of claim 23, including means for selecting compression mode for said soft information at least partially based on channel estimates.

34. A signal combining unit in a cellular radio network, said combining unit including

means (14) for receiving multiple signals from a transport network, each signal at least partially containing compressed soft information;

means (16; 16A, 16B) for de-compressing said soft information to form corresponding de-compressed baseband signals from said received signals, and

means (18-24) for combining said baseband signals based on said de-compressed soft information.

35. The signal combining unit of claim 34, including at least one lookup table for de-compressing vector quantized soft information.

36. The signal combining unit of claim 34, including means for sending at least one control signal to compression units to assist in selecting compression mode for said soft information.

37. A signal decoder node in a cellular radio network, said decoder including

means (14) for receiving a signal from a transport network, said signal at least partially containing compressed soft information;

means (16; 16A, 16B) for de-compressing said soft information to form a corresponding de-compressed baseband signal from said received signal, and

means (24) for decoding said de-compressed baseband signal based on said de-compressed soft information.

38. The signal decoder of claim 36, including at least one lookup table for de-compressing vector quantized soft information.

39. The signal decoder of claim 37, including means for sending at least one control signal to a compression unit to assist in selecting compression mode for said soft information.